PHENIX

TECHNICAL SUPPORT 2014

PHENIX WEEKLY PLANNING

October 2, 2014

Carter Biggs

This Week

TECHNICAL SUPPORT 2014

- Continue prep for MPC-Ex North installation
- Continue VTX/FVTX troubleshooting & repairs
- Prep to test FVTX cooling line upgrades
- Continue assembly of MPC-Ex North (@ SB)
- Continue sPHENIX support
- Support MuTr work

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TECHNICAL SUPPORT 2014

Next Week

- Continue assembly of MPC-Ex North (@ SB)
- Finish prep work for MPC-Ex North installation
- Continue VTX/FVTX troubleshooting & repairs
- Continue FVTX cooling line and N2 distribution upgrades
- Continue sPHENIX support

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2014 planned Technical Support & 2014 Shutdown

TECHNICAL SUPPORT 2014

Open MMN hatch, MuTr North Sta 2 & 3 maintenance and repairs	7/9-9/30/2014
Remove FVTX/VTX East & West to PHYSICS, repair and reinstall 10/15/2014	7/14 –
VTX/FVTX Upgrade cooling lines, chiller preventive maintenance	7/21-10/6/2014
Assemble & test MPC-Ex North, ready for installation	8/1-10/6/2014
MuTr Sta 1 & Sta. North troubleshooting and repairs	8/11-9/30/2014
Electronic Cooling Water High Temp Alarm	8/11-10/31/2014
Prep MPC-Ex North installation area	~Done
F/VTX Cooling line upgrades teflon to stainless	8/25-10/31/2014
F/VTX N2 supply manifold upgrade	Done
F/VTX Chiller preventative maintenance	8/25-10/31/2014
Reinstall MMS east vertical lampshade	9/2-10/10/2014 ?
Install new MPC-Ex North, thoroughly test before moving CM north	9/8-10/20/2014
Assemble & test MPC-Ex South, ready for installation	9/2-10/31/2014 ?

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TECHNICAL SUPPORT 2014

2014 planned Technical Support & 2014 Shutdown (cont'd)

Remove Sta 1 N scaffolds, Move CM North, Install scaffolding in Sta 1 S	**10/10- 10/20/2014**
Install MPC-Ex South	**10/20-11/4/2014**
Reinstall, reconnect, re-survey and re-commission VTX/FVTX	**10/16-11/26/2014**
sPHENIX Support	**on-going**
End of Shutdown Tasks (Move MS north, roll in EC , install collars, remove 10 ton cart, plates and manlifts, build shield wall, etc.)	**12/1-12/12/2014**
DC East & West maintenance & repairs	**10/20-10/31/2014**
Pink/White/Blue Sheets	**12/1-12/19/2014**
End of Shutdown Party	**????**
Start Flammable gas flow	**????**
Close shield wall, install radiation interlocks and prepare for run 14	**12/31/2014**
Start run 15	**1/2/2015**

TECHNICAL SUPPORT 2014

Work Permits for 2014 Shutdown

- Start of Shutdown - Done
- VTX/FVTX East - Done
- MPC-Ex - Done
- MuTr Sta 1 N & S - Done (scaffold agreement done)
- MuTr North station 2/3 - Done
- MuTr South station 2/3 & MMS South Water leak - Done
- MPC North - Done
- DC East/West – need by 10/20
- End of Shutdown – need in December

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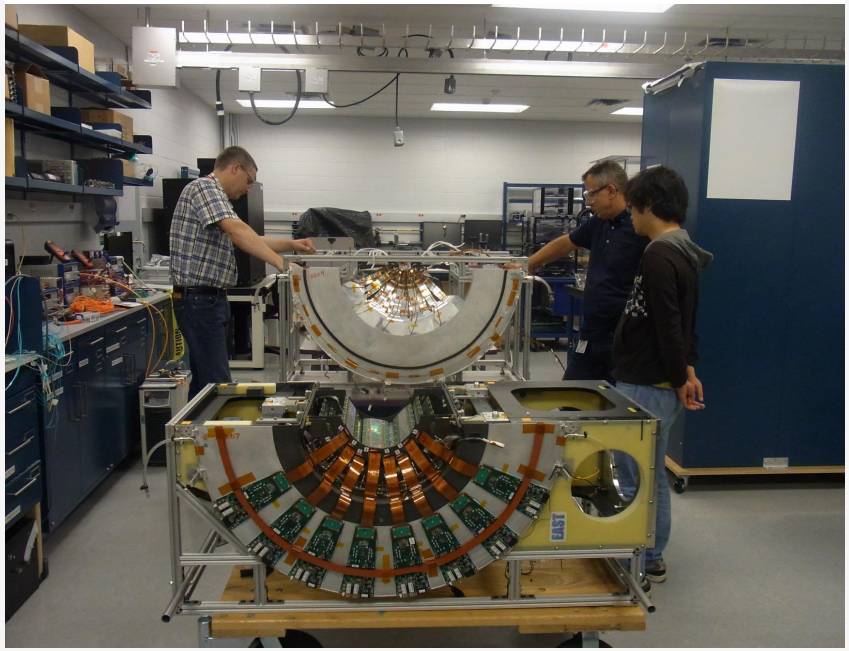
TECHNICAL SUPPORT 2014



VTX/FVTX to be ready for re-installation NO LATER THAN 10/20/2014

TECHNICAL SUPPORT 2014

VTX / FVTX UPDATE

The east stripixel barrels have been reassembled and installed into the space frame and tested.
Work is in progress to pressure test the east pixel barrels. Once tests are done and the leak rate is acceptable, the east pixel barrels will be installed into the space frame.
The new RIKEN post-doc, Takayuki Sumita will be arriving on 9-Oct to connect the east pixel big wheels and test electronics

The west pixel ladders have been removed from the space frame and work has started on repairing the west strip ladders. The goal is to complete the stripixel repairs by the end of this week.

There have been 2 recent leaks in the pixel cooling lines, a pinhole in a polyethylene elbow and a broken elbow that have been repaired with stainless steel pieces. there is ongoing discussion about the need to replace additional components to prevent/limit future leaks. Pending the resolution of that discussion and approval of the PIXEL group, the west pixel barrels will be installed, followed by the west FVTX cages. Hopefully this will happen by the end of next week before Mike L. goes on vacation.

The FVTX east cages most likely will not be reinstalled until after Mike L returns from vacation on 10/13.
Once the FVTX cages are re-installed, we should plan on running final tests to make sure that everything is working, I will keep the FVTX group informed as to the schedule

Following assembly and testing, Mike L. and Rob P. will need a few days to cleanup and make sure that the detector is ready for installation. I will ask that this includes a final pressure test of the cooling loops.
On the trigger front, there was a lot of effort last week to test out aspects of the forward multiplicity trigger. Not all tests were completed and there are additional tests that need to be done. Itaru will be back later this year (Nov?), but it would be useful to do some testing before he returns to help the effort. Right now parts of the test stand (power supplies) are out at 1008 and will have to come back to 510 for cage testing.

Eric

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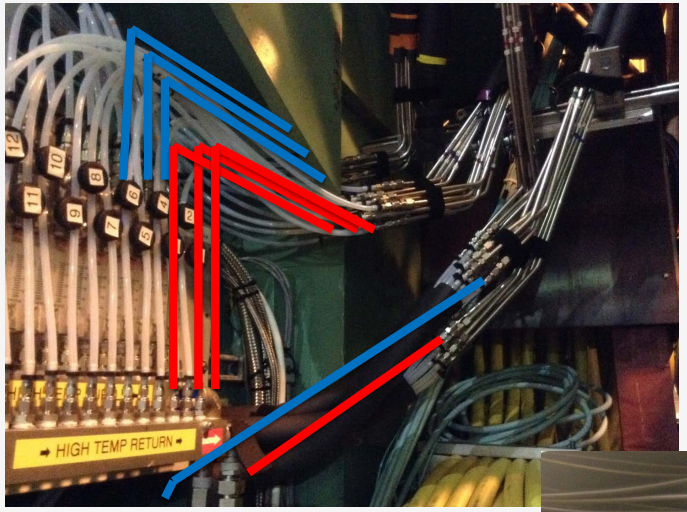
Top manifold has 13 Supply and 13 return lines. Both North and south need to be replaced.

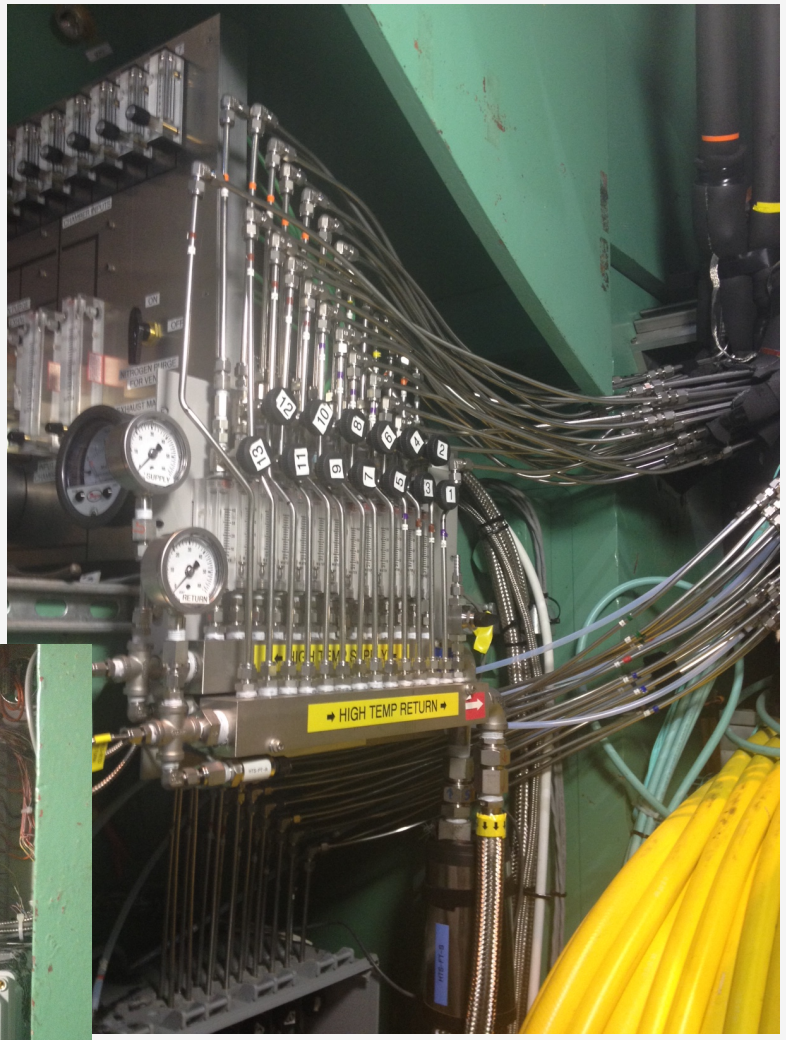
Bottom manifold has 9 Supply and 9 Return lines Both North and South need to be replaced

Current labeling on tubes needs to be maintained and copied to new lines



Bends need to be done carefully so not to restrict flow. Swage elbows can also be used for sharp bends

Replace All Teflon lines with ¼”ID 316 thin walled Stainless McMaster Coil:89995K82
Or Rigid with Min ID 0.21” (89995K288)



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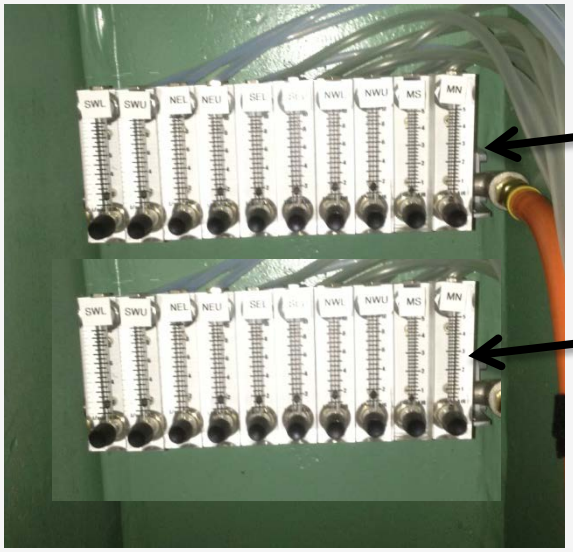
VTX/FVTX N2 Supply Manifold.
Located on south side of central magnet



Original N2 Distribution Panel

New N2 Distribution Panel
- 10 flowmeters
- 0-10lpm
- Output ¼”I.D barb
- Leave about 10” space between manifolds.

TECHNICAL SUPPORT 2014

Shutdown work on chillers to help with reliability

1. Change pump seals on chillers 1 and 3
   - Chris replaced chiller 2's pump seal. There was some trial and error to get it right.
   - We have these parts
2. Replace both control solenoids and Filter on chiller 1 and 2
   - We have these parts
   - BNL HVAC guys. Schedule for Beginning of OCT
3. General annual maintenance on all 3 units listed in manual
   - HVAC guys/ Phenix Tech

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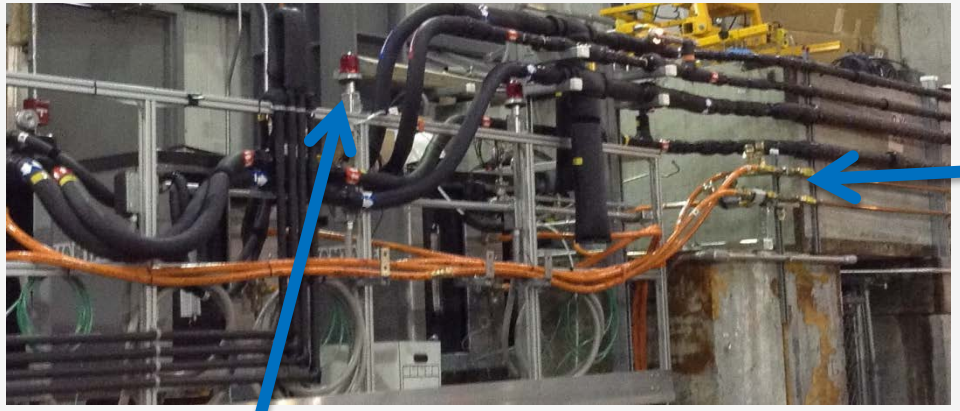
TECHNICAL SUPPORT 2014

Modifications to Water lines to make switchover less time consuming.

Permanently connect water lines to all 3 chiller through a new 3 channel manifold. Currently the manifold only has 2 channels. It needs to have a 3rd channel added for the spare chiller. We should also replace the flowmeter s with ones that have a smaller scale.

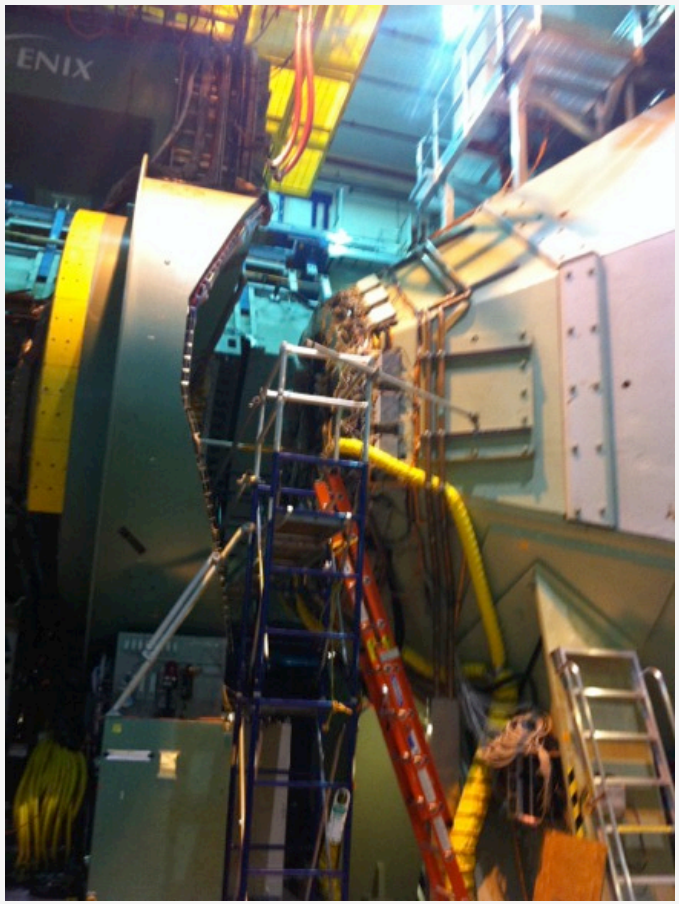


Manifold Location

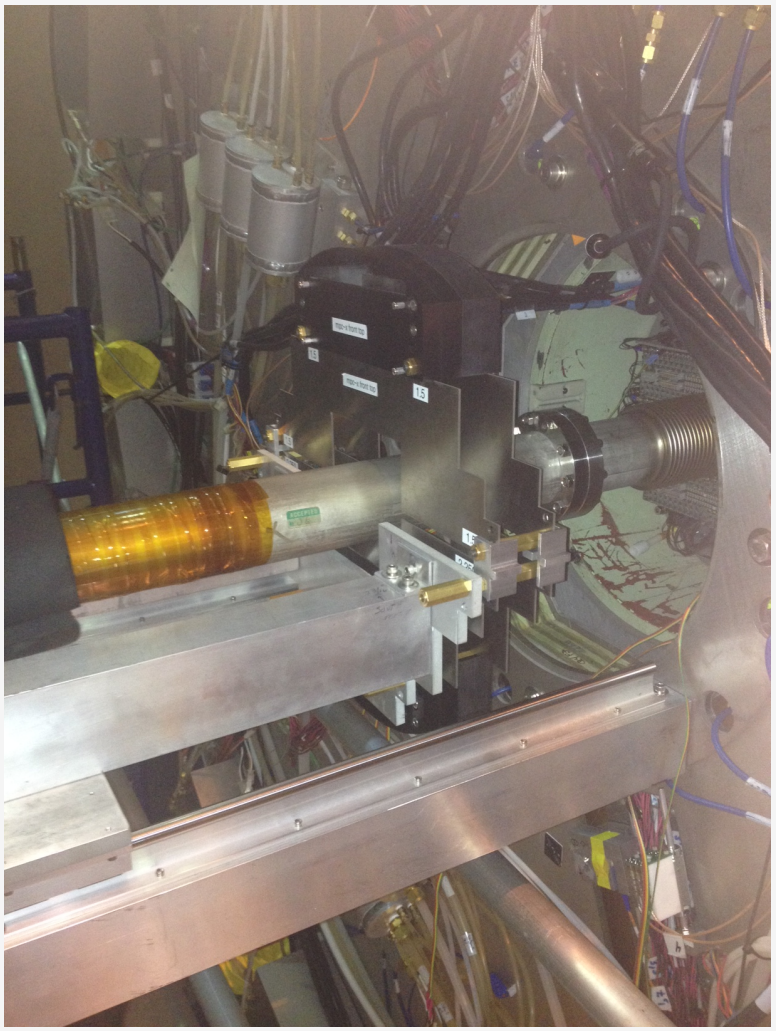
Instrument spare chiller with alarms similar to other two chillers.

1. Need to add float switch to lid. (I have parts)
2. A third strobe and audible alarm added to rail. (Frank did this last time)

TECHNICAL SUPPORT 2014



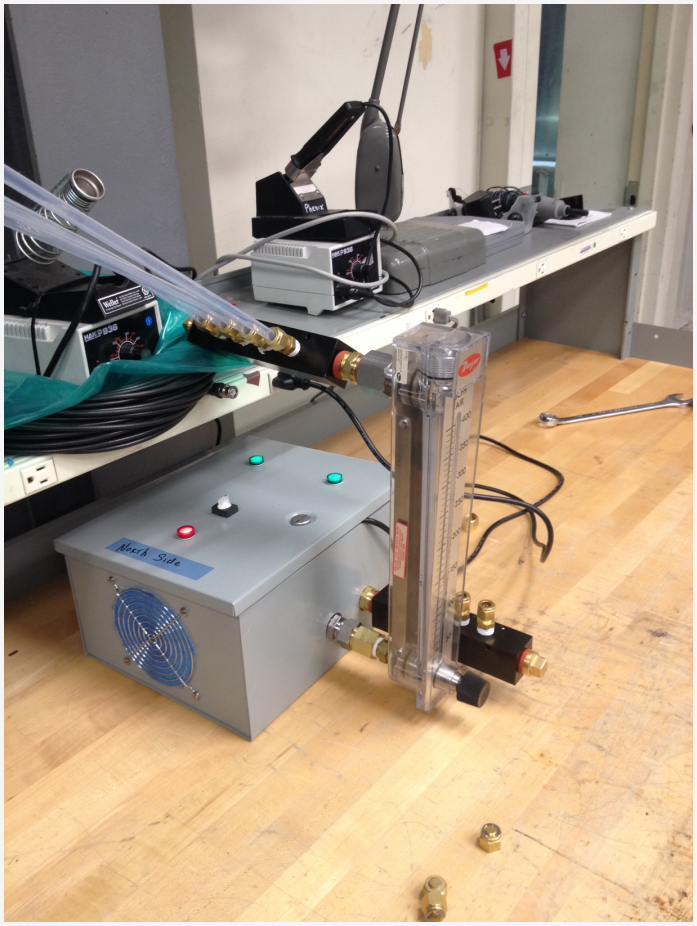
MPC-Ex North Just about ready to go.



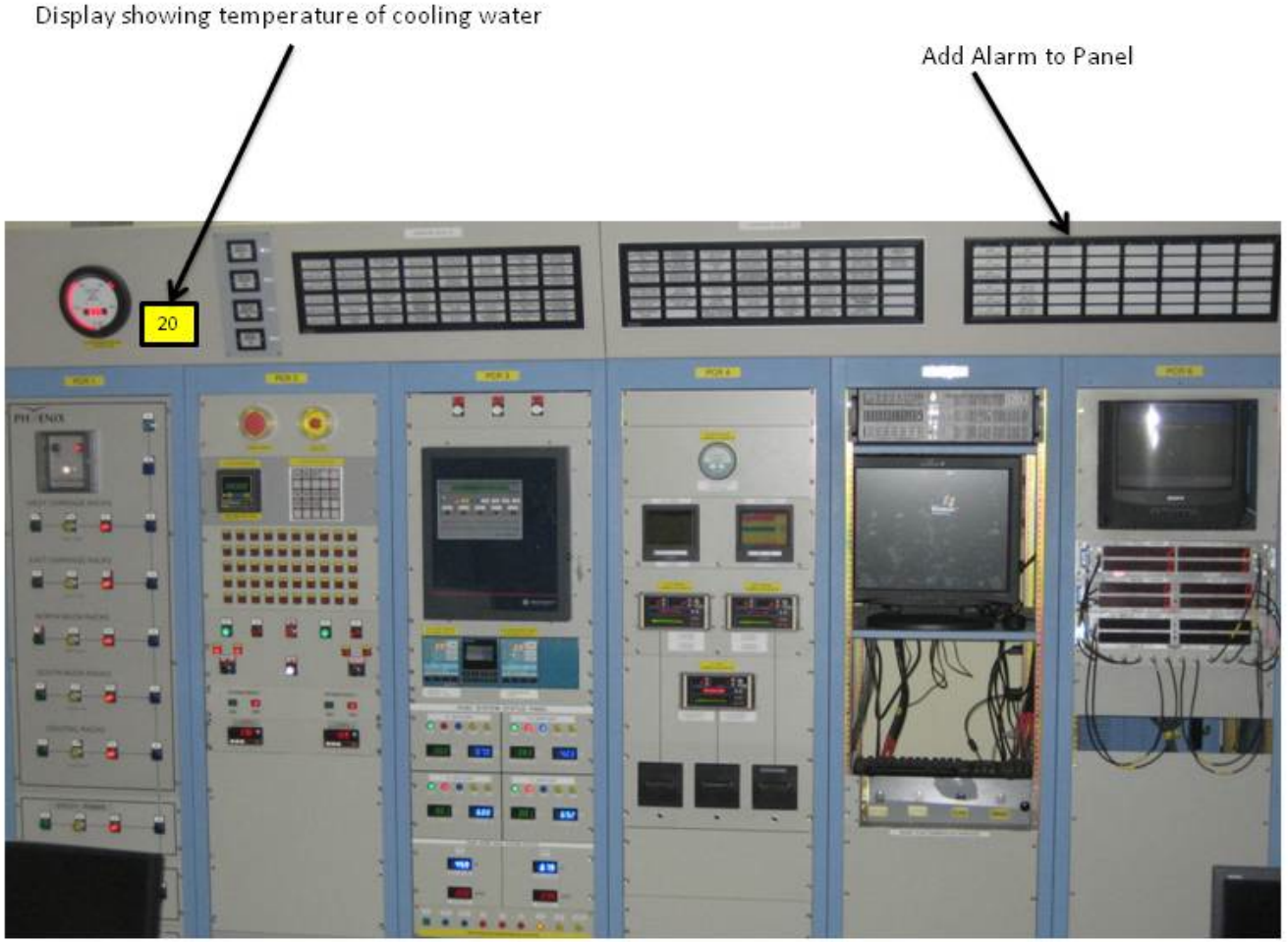
MPC-EX North Rack

TECHNICAL SUPPORT 2014

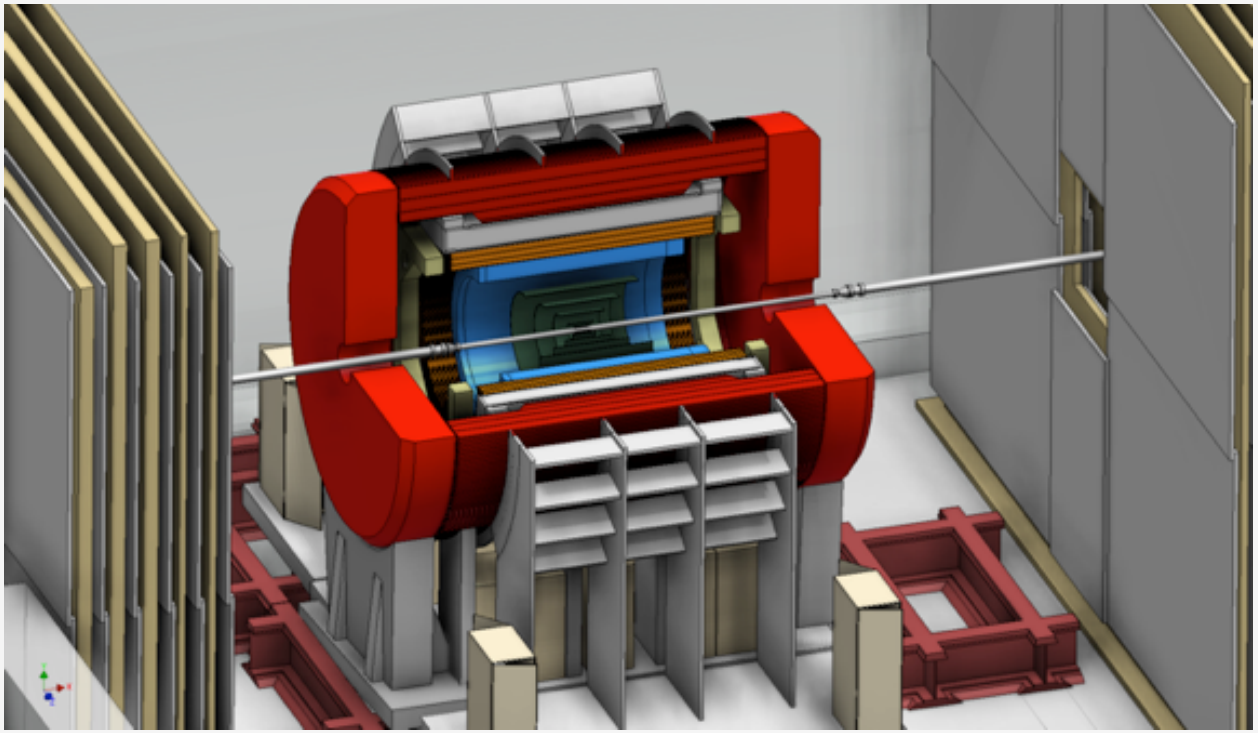
MPC-Ex Flow tests



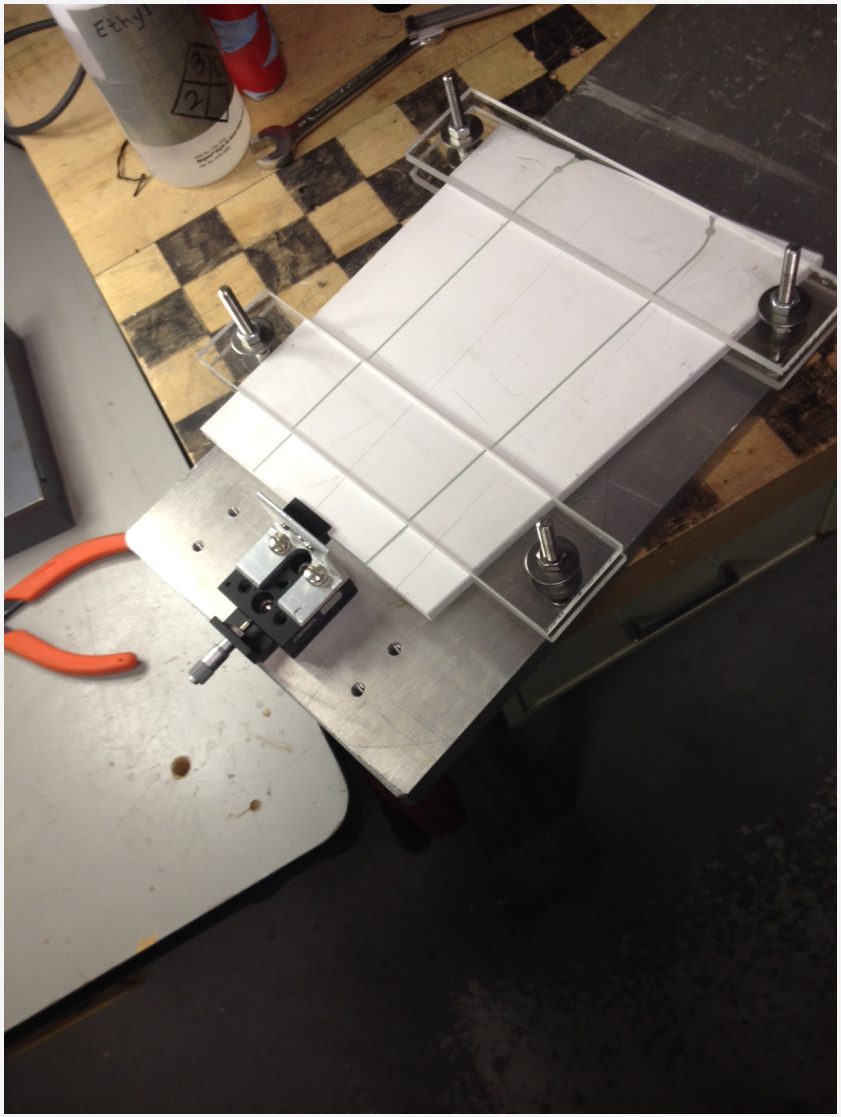
Electronics Cooling Water High Temperature Alarm



sPHENIX Update



TECHNICAL SUPPORT 2014



sPHENIX HCal scintillator test setup

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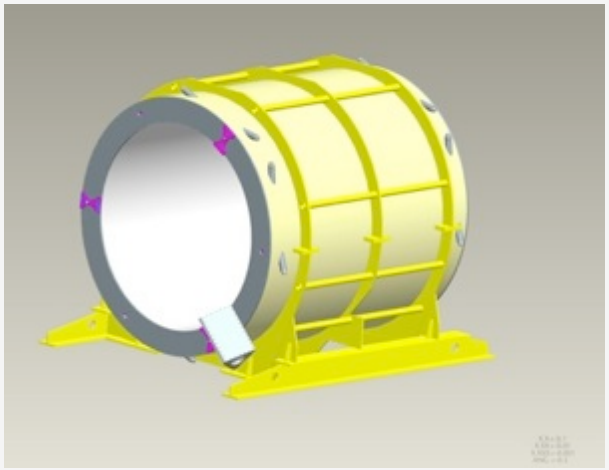
TECHNICAL SUPPORT 2014

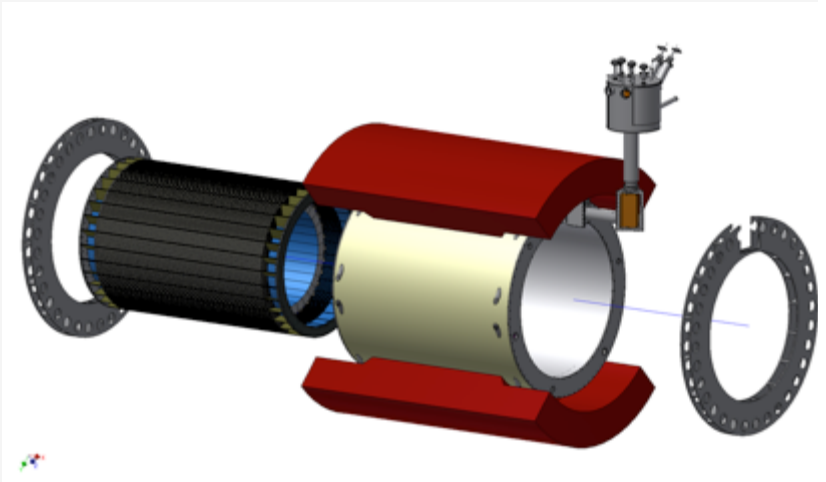
sPHENIX Update:

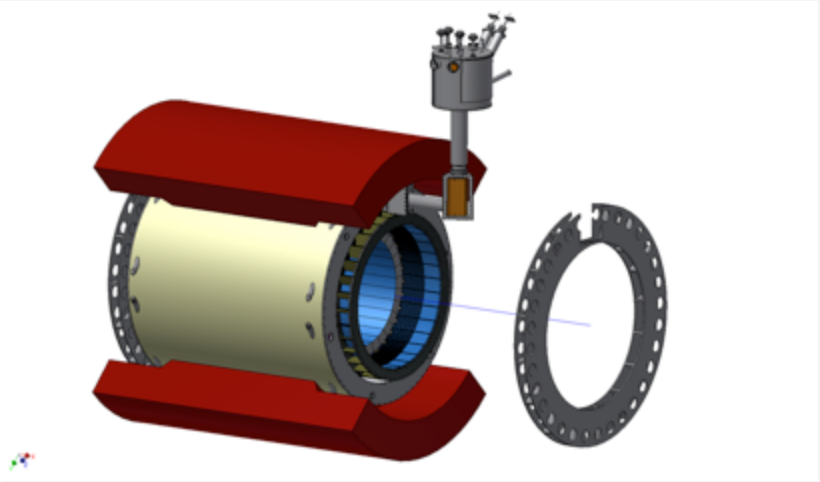
- Meeting yesterday at Mag. Div.
- Almost ready to ship; shipping fixtures sent to SLAC yesterday, Mike Racine (SLAC) to install them. Expect to ship ~10/20.
- Hi-pot test to be performed when received at BNL
- Need to prepare for a safety committee review (ASME cert.)
- May need a 500 liter Dewar for operation of magnet during a shutdown (e.g. mag mapping) would be located on CP upper platform.
- Need to finalize Magnet stack modification envelope ASAP.
- Expect to perform low field cold test by ~June 30, 2015
- Next meeting: 1pm, Wed, Oct 1, testing plan to be discussed in more detail

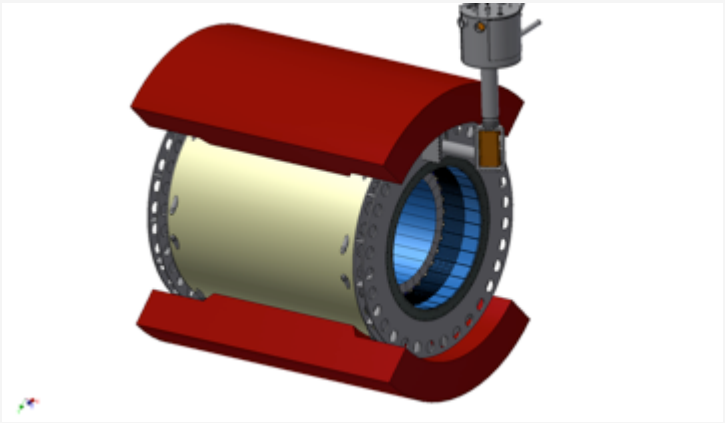


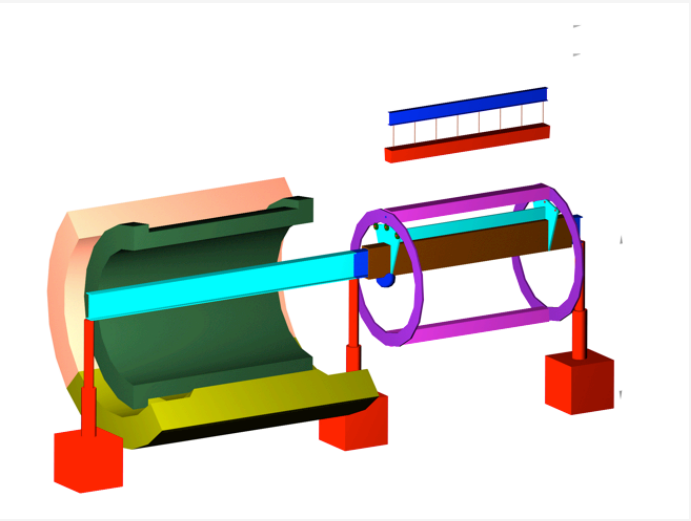
TECHNICAL SUPPORT 2014

Internal Support Concept









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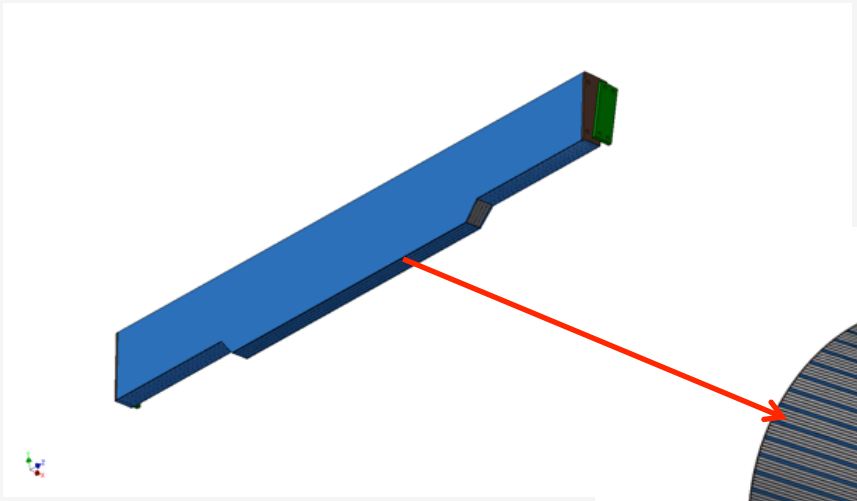
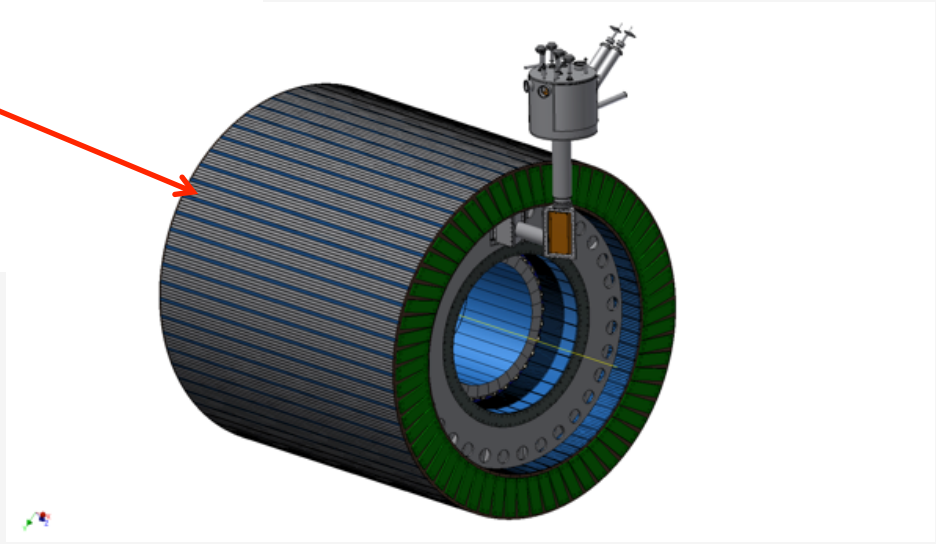
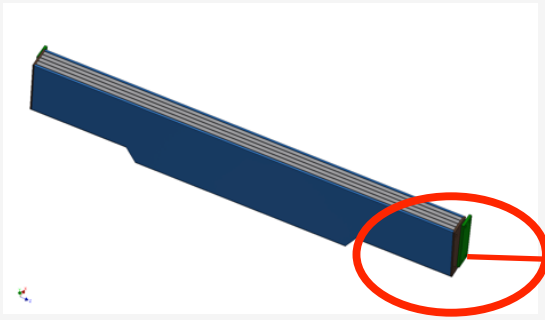
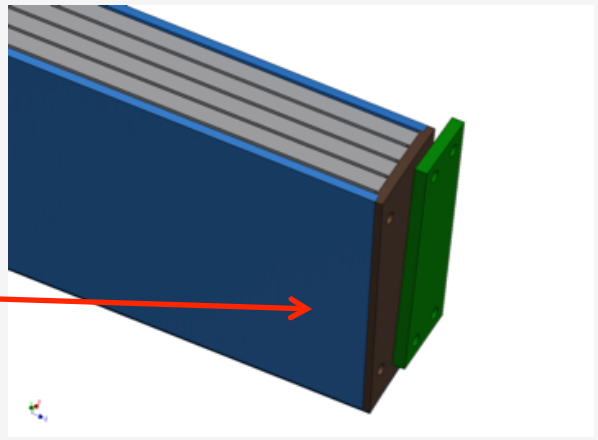
Outer HCal Design Concept:

64 Modules tied at ends









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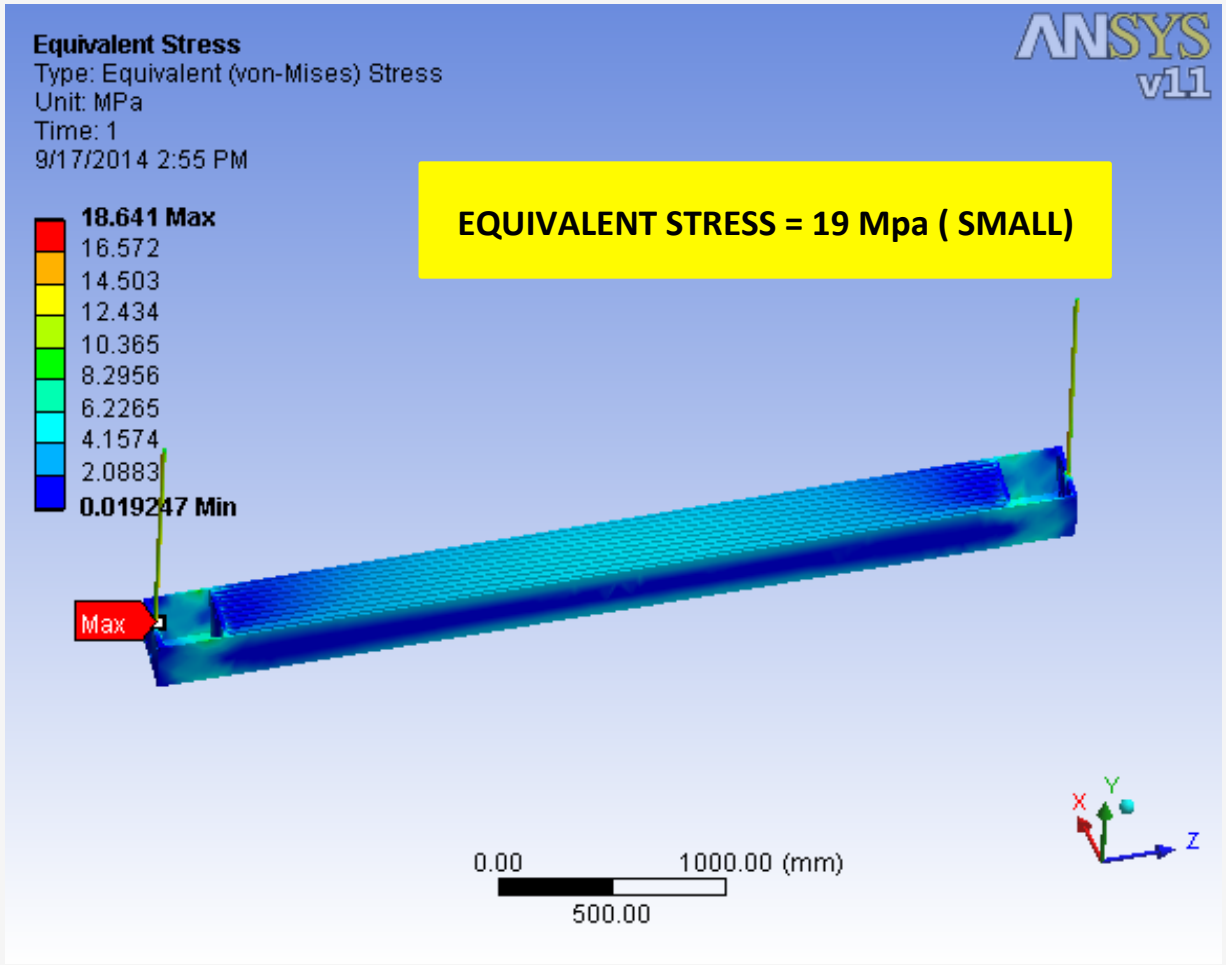
sPHENIX INNER H-CAL MODULE STUDY (PRELIMINARY)
STRESS DURING VERTICAL LIFTING PROCEDURE DETAILS



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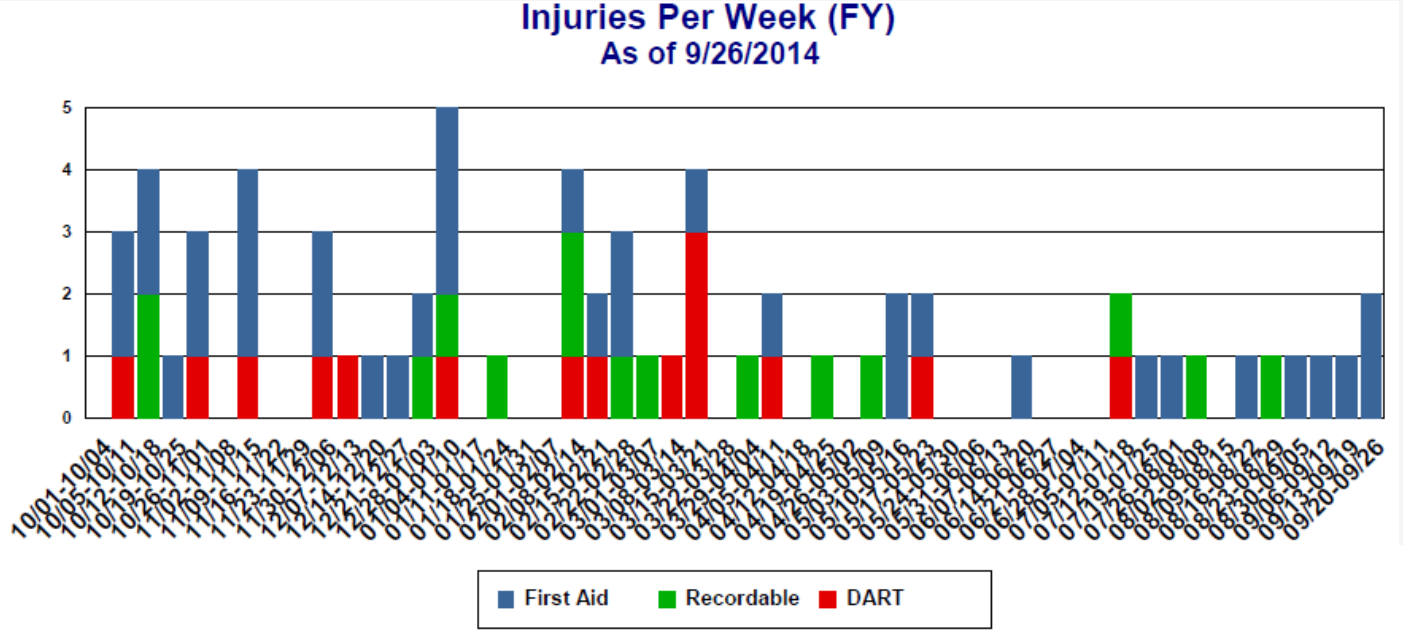

Injury Status:

FY14 YTD: DART – 15, TRC – 30, First Aid – 36
FY13: DART – 16, TRC – 38, First Aid – 53
FY12: DART – 19, TRC – 36, First Aid – 69

FY14 Injury Listing:
https://intranet.bnl.gov/esh/shsd/seg/OccInj/BNLInjuries.aspx

Recent Injuries		
9/24/14	First Aid	An employee was moving equipment and injured a thumb. At the OMC, first aid was given.
9/22/14	First Aid	An employee was moving equipment with a coworker and was struck by the falling equipment injuring multiple body parts. At the OMC, first aid was given.

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TECHNICAL SUPPORT 2014

Recent Events		
9/18/14	Non-Reportable	Uncoated lead was found stacked and tossed under an outside storage area beneath the front porch of Building 348. They appear to be placed on the ground and may have been covered in plastic at one time. There is some plastic under the porch, partially covering the lead. Most of the lead appears to be bricks, along with some odd-shaped pieces. The area is about 4 to 5 feet wide and a couple of feet deep. It is not known when the lead was stored or who stored it. (Event Link)
9/18/14	Non-Reportable	A research staff member checked several ultra-low temperature (ULT) freezers containing legacy research samples (which were left behind awaiting property transfer) and discovered that one ULT freezer had no power and the contents were at room temperature instead of the normal -80 degrees centigrade. Investigation revealed that the two circuit breakers associated with the unit's outlet had tripped, and the alarm connection to the Chilled Water Facility was disconnected from the rear of the freezer. The samples were relocated to other ULT freezers to minimize loss. Investigation is continuing and the Principle Investigator will inspect the samples to determine amount of loss. (Event Link)
9/18/14	Non-Reportable	A damaged fire hydrant was discovered in the traffic circle by Building 740. The hydrant was apparently struck by an unknown vehicle. The hydrant is unusable and will have to be replaced. (Event Link)
9/16/14	Non-Reportable	Two abandoned wires were exposed during excavation to install new conduit at Bld. 811. A BNL electrician verified that the wires were de-energized and determined that they were previously used for street lighting that has since been removed. This work was done under a Digging Permit for the project; the exposed wires were not on the Utility Map or identified on any document. (Event Link)
9/11/14	Non-Reportable	A transfer of bagged radioactive waste from B-801 to B-912 was completed using a government vehicle. Once the truck bed was emptied and the bagged waste placed in waste containers in B-912, the radiological control technician surveyed the truck bed and found contamination. No personnel were contaminated. The highest contamination level in the truck bed was 5,300 DPM/100cm2. This is below the SCBNL trigger level of 25,000 DPM/100cm2 and below the ORPs trigger level of 50,000 DPM/100cm2. The truck was kept in B-912 until decontaminated. C-AD is in the process of writing a Radiological Awareness Report to document the causes of the contamination and corrective actions taken to prevent recurrence. The work was done under a Radiological Work Permit at both buildings. (Event Link)

TECHNICAL SUPPORT 2014

From Ray Karol:

GFCI Testing
Please perform or assign the task to perform the monthly test of any GFCI outlets and breakers that have devices plugged in to them at all times such as kitchen appliances, water fountains, experimental equipment that if tested will not interrupt the program, etc. WEAR THE PROPER ARC FLASH PPE FOR THESE TESTS AS PER C-A-OPM 1.5.3 WHEN CONDUCTING THESE TESTS IF IT INVOLVES BREAKERS.

The monthly testing is required by SBMS which states:
"Test GFCI receptacles prior to use, or if used continuously, follow manufacturer's requirements;"
It does not have to be documented.

This reminder is sent out monthly to remind you to perform these tests to ensure the safety of staff from electrical shock.

The basis for the testing is delineated in a BNL Electrical Safety Committee Interpretation in March 2008.
http://intranet.bnl.gov/esh/esc/PDFs/Testing%20Class%20A%20GFCIs.pdf

Where To Find PHENIX Engineering Info

Go Giants and Jets!!

http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm